Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Unbundled Access to Network Elements	)	WC Docket No. 04-313
	)	
Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers	)	CC Docket No. 01-338

COMMENTS OF ADVANCED FIBRE COMMUNICATIONS, INC.

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Dated: October 4, 2004

SUMMARY

Advanced Fibre Communications, Inc. ("AFC®") supports the Commission's decision in the *Triennial Review Order* to reduce or eliminate the unbundling obligations imposed on the ILECs' broadband facilities. The reaction that such a policy choice was expected to produce – accelerated broadband investment – is occurring. The Commission should not retreat from this policy that is helping bring advanced services to all Americans.

The Commission must be particularly wary of changing course now, because while the effect of those policies has been positive, it is not yet robust or firm. The telecommunications manufacturing sector, which was decimated by the "dot-com bust," is still very much in the process of recovering, with layoffs still continuing today. A re-imposition of broadband unbundling obligations is likely to lead to an abrupt halt in advanced services investment, particularly in light of the uncertainty that would follow from inevitable appellate challenges to any such decision by the Commission to reverse course suddenly. In contrast, the *Triennial Review Order*'s broadband determinations have already survived appellate challenge unscathed.

Finally, AFC urges the Commission to accord similar unbundling treatment to fiber-to-the-curb and fiber-to-the-home. Both broadband system designs provide the same set of "triple play" services and revenue opportunities, and in both cases the impairment analyses can conclude the absence of impairment. Moreover, FTTC is virtually identical to fiber-to-MDUs – both incorporate a small amount of copper or other metallic media in the connection between the pedestal and the customer's home/apartment – and the Commission recently decided to treat fiber-to-MDUs the same as FTTH. The Commission should do the same for FTTC in this proceeding.

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Advanced Fibre Communications, Inc. ("AFC®") hereby comments on the Commission's Further Notice of Proposed Rulemaking on incumbent carriers' unbundling obligations.[1] The *TRO Remand NPRM* was issued in response to the Court of Appeals decision[2] vacating and remanding portions of the *Triennial Review Order*.[3] As detailed below, AFC believes the Commission adopted the proper policy of significantly reducing the obligations of ILECs to unbundle broadband services in the *Triennial Review Order*, and the Commission should not veer off of that course. Indeed, in order to best effectuate this policy, the Commission should take the additional step of treating fiber-to-the-curb (FTTC) the same as fiber-to-the-home (FTTH) for unbundling purposes in greenfield situations.

AFC is an access industry-leader, delivering multi-service broadband solutions to

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1 *Unbundled Access to Network Elements*, WC Docket No. 04-313, FCC 04-179, released August 20, 2004, *Federal Register* Vol. 69 at p. 55128 (September 13, 2004), hereafter cited as *TRO Remand NPRM*.

2 *USTA v. FCC*, 359 F.3d 554 (D.C. Cir. 2004) ("*USTA II*").

3 *Review Of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, 18 FCC Rcd 16978 (2003).

the global telecommunications industry. AFC's comprehensive portfolio of true end-to-end solutions provides carriers with exceptional revenue growth opportunities, including the delivery of the "triple play": voice, multi-channel video, and high-speed Internet services over a single network infrastructure. Whether it's DSL, IP video, Fiber-to-the-Premises or essential voice services, AFC has advanced the access network with its rich suite of fully-integrated solutions, including AdvancedVoice℠, FiberDirect℠, TelcoVideo℠, and UniversalDSL℠. AFC's access solutions are utilized by carriers to meet their unique specifications, serving a variety of network topologies and covering the range of world standards and carrier-class requirements. Because of the impact of the Commission's unbundling rules on the investment incentives of its current and potential customers, AFC (and the North American Access business unit acquired from Marconi Corporation plc) have actively participated in the Triennial Review proceedings.[4]

As explained herein, AFC urges the Commission to adopt unbundling rules that will stimulate additional investment in advanced services capabilities and foster robust, facilities-based competition. Such policies will fulfill Congressional intent and best serve the public interest.

I. The Broadband Policy Path Adopted in the Triennial Review Order Has Produced Positive Broadband Investment Incentives

The Commission decided in the *Triennial Review Order* to eliminate significant disincentives for investment in broadband technologies by removing the unbundling

[4] *See, e.g., Ex Parte* Notices submitted by Marconi on September 26, 2003, October 1, 2003, December 3, 2003 and February 19, 2004; Reply Comments on Petitions for Reconsideration in CC Docket No. 01-338 filed by Marconi on November 17, 2003; Letter to Chairman Powell from John A. Schofield, Chairman of the Board, President, & Chief Executive Officer of AFC, dated May 6, 2004.

obligations for fiber deployments and packet-switched facilities.[5] The Commission's decision was driven by several important factors: the incumbent carriers' broadband offerings only achieved roughly half the market penetration of cable modem services; deployment of new fiber by competitive carriers demonstrated an absence of impairment; additional technologies (including wireless and broadband over power line) had been demonstrated as viable alternatives; the telecommunications manufacturing sector had been decimated by the "dot com bubble" implosion; and a growing recognition of the importance of broadband to support business, medical and educational applications. The Commission relied upon all of these factors in applying the "impairment" and "at a minimum" standards of Section 251 (d)(2) of the Telecommunications Act of 1996 in concluding that it should reduce or eliminate the unbundling obligation for incumbent carriers' broadband facilities and services.

The decision to reduce or eliminate broadband unbundling appears to have spurred investment by the incumbent carriers in new DSL and fiber technologies. Verizon has announced (and taken steps to implement) significant new fiber deployment.[6] Under Phase 1, Verizon intends to deploy one million new lines of fiber-to-the-premises by the end of this year – 2004 -- at a cost of some $1 billion. Verizon has already initiated service using this new fiber-to-the-premises platform in Keller, Texas, and construction is underway in several other markets, including Huntington Beach, California and Tampa, Florida. Verizon has plans for adding fiber deployment to another million-and-a-half homes by the end of next year, with deployment to potentially twice

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5 *See generally, Triennial Review Order* at ¶¶ 272-297 and 535-541.

6 *E.g., TelephonyOnline.com* (Mar 9 2004), "Verizon begins ordering FTTP gear."

that number of homes in that same time frame.[7] AFC has been selected by Verizon as a contractor for its fiber deployment,[8] and thus has been able to observe first hand the impact of the reduction in broadband unbundling obligations.

Other incumbent carriers have also announced plans for increased or accelerated deployment of broadband services. SBC has announced plans for an incremental investment of $4 billion to $6 billion over the next five years to deploy fiber deeper into its network and develop a network capable of delivering a new generation of integrated digital TV, super-high-speed broadband and voice over IP (Internet Protocol) services to residential and small business customers.[9] Likewise, BellSouth has indicated that it currently is deploying fiber in new construction to some 150,000 to 200,000 homes a year.[10]

There is additional evidence of the positive impact of the Commission's decision to eliminate or reduce the unbundling obligations for broadband and packet switching network elements. According to the DSL Forum, DSL subscribers in North America grew 11.72% in the First Quarter of 2004, reflecting record breaking growth for the third

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7 *CNET News.com*, "Verizon blames federal rules for broadband holdup," August 24, 2004.

8 *Broadband Access Report*, Issue 1542-569X, December 28, 2003.

9 *SBC Press Release*, "SBC Communications Announces Advances In Initiative To Develop IP-Based Residential Network For Integrated Video, Internet, VoIP Services," San Antonio, Texas, June 22, 2004.

10 *See* Speech of F. Duane Ackerman, Chairman and CEO, BellSouth Corporation at Aspen Summit 2004: Chairman's Dinner & Address, Tuesday, August 24, 2004 (transcript at http://bellsouthcorp.policy.net/proactive/newsroom/release.vtml?id=46807).

consecutive quarter.[11] The DSL Forum's latest statistics reflect that in the Second Quarter of 2004, DSL subscribership in the United States increased from 10,584,281 to 11,434,254 – an increase of eight percent for the quarter.[12] In recent earnings forecasts, Corning raised its estimates of fiber optic sales volumes, including "unexpected strength" in the North American market.[13] Indeed, the Commission recently concluded in its Fourth Report to Congress that "the deployment of advanced telecommunications capability to all Americans is reasonable and timely."[14] AFC believes that the Commission's action in the *Triennial Review Order* in removing the unbundling obligations for broadband and packet switching facilities is helping to spur this deployment. Thus, AFC urges the Commission not to backtrack from those policies.

II. The Commission Must Not Retreat from the Broadband Policy Path Adopted in the Triennial Review Order

The Commission should not take any action in this proceeding on remand and reconsideration that would reinstate the investment disincentives created by requiring the ILECs to unbundled broadband or packet switching facilities. As described above, the marketplace has reacted positively -- as expected -- to the elimination of the investment

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[11] *DSL Forum Press Release* issued June 9, 2004 "Broadband Achieves Record Breaking Growth for the Third Consecutive Quarter." Similarly, Infonetics Research reported that worldwide DSL CPE units grew 18% and revenue grew 14% between the First Quarter and Second Quarter of 2004. PR Newswire, August 25, 2004, "DSLAM Market Grows in North America and CALA, Slows in Asia and Europe."

[12] *DSL Forum Press Release*, September 22, 2004, "DSL Maintains Global Broadband Dominance: Wins North American Broadband Growth Race."

[13] *CBS Marketwatch*, September 9, 2004, "Corning Shares Rise on Outlook."

[14] Federal Communications Commission, "Availability of Advanced Telecommunications Capability in the United States, Fourth Report to Congress," September 9, 2004 at p. 38.

disincentives, as reflected by the increased broadband investment by the ILECs. And while AFC appreciates the benefits of that added investment on the telecommunications manufacturing industry, AFC is concerned that any retreat by the Commission would likely have significant adverse consequences that would harm the public interest. There are some ominous signs that the accelerated deployment of advanced services is not yet robust or firm.

While Verizon has demonstrated definitive plans for deploying new fiber to as many as one million homes this year, and has already initiated such new services in Keller, Texas (with construction underway elsewhere), Verizon has also indicated that its future deployment plans are contingent on the absence of a hostile regulatory environment. For example, in a letter to Chairman Powell in an *ex parte* submission on its petition for forbearance from any separate Section 271 unbundling obligation for broadband facilities, Verizon observed that it will be hesitant to invest in new fiber facilities where it faces unbundling obligations.[15] Likewise, prior to the Commission's modification of its treatment of fiber-to-multidwelling units ("MDUs"), Verizon indicated that its deployment of fiber-to-the-premise ("FTTP") was contingent on fiber-to-MDUs being treated the same as other FTTP architectures (as well as no separate

[15] Letter from Thomas J. Tauke to Chairman Powell, September 2, 2004. Similarly, Verizon's President at a recent conference indicated that Verizon is unlikely to invest in broadband facilities in territories where they are subject to unbundling obligations. *See*, *CNET News.com*, August 24, 2004, "Verizon blames federal rules for broadband holdup":

> But the old Bell Atlantic and Nynex territories in the northeast are subject to different rules. That's why Verizon is offering Fios only in California, Florida and Texas. "We cannot run the risk of having fiber unbundled," Babbio said, referring to the Telecommunications Act's requirements that Verizon offer deeply discounted "unbundled" access to its fiber loops.

unbundling obligation under Section 271).[16]

SBC has also made clear that its plans for deployment of FTTP (including fiber-to-the-node) remain contingent because of potential regulatory disincentives. In its Press Release announcing its proposed plans to spend $4 billion to $6 billion on fiber deployment over the next five years, SBC stated:

> SBC companies have defined a strategy to drive fiber deeper into its networks to power high-speed, IP-based local connections. ***Pending final clarity on applicable regulatory requirements*** and successful completion of neighborhood-level trials, which begin this summer, the SBC strategy could result in an incremental investment of $4 billion to $6 billion over five years to deploy the network and make advanced services available to millions of customers in the SBC service territory.[17]

In a similar vein, in a recent *ex parte* presentation on its Project Lightspeed, SBC indicated to the Commission that "regulatory confidence" is necessary to spur such deployment.[18] Moreover, BellSouth has indicated that increased deployment of new fiber will depend on "the right regulatory signals."[19]

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[16] *See*, *Ex Parte* Presentation of Verizon in CC Docket No. 01-338, February 18, 2004 at Slide 6.

[17] SBC Press Release, June 22, 2004, "SBC Communications Announces Advances In Initiative To Develop IP-Based Residential Network For Integrated Video, Internet, VoIP Services" (emphasis added).

[18] SBC *Ex Parte* Presentation, CC Docket No. 01-338, filed September 17, 2004 at Slide 7.

[19] *Converge Network Digest*, "FTTP: Hype or Reality? Perspectives from Verizon, BellSouth, Alcatel" (http://www.convergedigest.com/DSL/lastmilearticle.asp?ID=8766), quoting Peter Hill, Vice President of Technology for BellSouth: "About 315,000 new homes will be built in BellSouth territory this year and about a third of them will be equipped with direct fiber connections. With the right regulatory signals, Hill said these FTTP deployments would be expanded."

There is other evidence that the broadband deployment acceleration spurred on by the Commission's removal of unbundling obligations, while encouraging, may not be complete. The recent statistics compiled by the DSL Forum discussed above indicate that the rate of growth of DSL subscribership slowed between the first and second quarters of this year (from 11.72% to 8%). Moreover, telecommunications equipment manufacturers, who have been hard hit by the precipitous drop in telecommunications carriers' investment over the last several years, are still in a precarious state. Nortel Networks in August announced that it was cutting its work force by an additional 10 percent, or another 3,500 jobs.[20] The stock market has certainly not yet attached significant optimism to the telecommunications manufacturing sector. Attached as Appendix A are charts reflecting the stock price of a sampling of telecom manufacturers compared to the Dow Industrial Average over the last year. Of those eight companies, five had stock prices that underperformed the market,[21] and only three did better than the industrial average.[22]

Importantly, any retreat by the Commission from its policy of eliminating or

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[20] Nortel Networks, Press Release, "Nortel Networks Provides Status Update, Sets Strategy to Fully Leverage Network Convergence" August 19, 2004, http://www.nortelnetworks.com/corporate/news/newsreleases/2004c/08_19_04_q1q2earnings_2004.html. More recently, Agere Systems, Inc. announced that it will be laying off 500 employees, 7.6 percent of its work force. Associated Press, "Agere to Lay Off 500 Employees," September 29, 2004.

[21] The five companies whose stock price reflected a lower growth rate than the Dow Jones Industrial Average were: Adtran, Inc., Advanced Fibre Communications, Alcatel ADS, CIENA Corporation and Nortel Networks. *See* Appendix A.

[22] The three companies whose stock price reflected a higher growth rate than the Dow Jones Industrial Average were: Corning, Inc., Lucent Technologies and Tellabs, Inc. *See* Appendix A.

reducing broadband unbundling policies is likely to disproportionately affect investment decisions because of the uncertainty that would be generated by the almost certain resulting appellate litigation. Indeed, the Commission recently relied on "the pressing need for market certainty" to justify imposition of its interim unbundling rules.[23] In marked contrast to the uncertain outcome of an appeal of a Commission decision to suddenly reverse its broadband policy, the Commission's prior decision to reduce or eliminate broadband unbundling obligations has already been reviewed and upheld by the Court of Appeals.[24] The Commission should not reverse course at this time.

III. The Commission Should Grant the BellSouth Petition for Reconsideration and Modify the Unbundling Treatment of Fiber-to-the-Curb

As part of the current remand proceeding, the Commission indicated that it would also incorporate the record generated by the petitions for reconsideration and clarification of the *Triennial Review Order*.[25] To the extent the Commission will be addressing in this proceeding the reconsideration issues, AFC reiterates its support for BellSouth's request that the Commission treat FTTC the same as FTTH in greenfield deployments. FTTC allows the carrier to deliver the same "triple play" of services as FTTH – voice, very high-speed data and multi-channel video – and thus enjoy the same revenue opportunities. In addition, there is no impairment because competitive carriers and incumbent carriers face the same hurdles in deploying FTTC in greenfield situations; in some respects (*e.g.*, non-union labor), the competitive carriers have an advantage.

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23 *See, TRO Remand NPRM* at ¶ 16.

24 *USTA II*, 359 F.3d at pp. 578-85.

25 *TRO Remand NPRM* at ¶ 12.

AFC also believes that arbitrary regulatory distinctions should not affect the particular FTTP architecture – FTTH or FTTC – selected by a carrier. Rather, those decisions should be based on the carrier's consideration of the engineering and economic factors presented by each situation. Otherwise, a carrier may decline to deploy fiber in situations where FTTC would be economical, but FTTH would not, thus depriving some Americans of access to advanced services.

The Commission considered an analogous situation when it recently decided to treat fiber-to-MDUs the same as FTTH.[26] In the case of both FTTC and fiber-to-MDUs, there is a small amount of copper and/or coaxial cable used in the loop. In the case of fiber-to-MDUs, that copper will be used in the risers and conduit within the building. In the case of FTTC, up to 500 feet of copper will be used to connect the home to the node. Thus, in both architectures there will be some copper, but in both cases (as well as FTTH), the carrier is able to deliver voice, very high speed data (up to 100 megabits per second ("Mbps")) and multi-channel video services.[27]

Commissioner Abernathy recognized the arbitrary nature of any regulatory distinctions between FTTC and fiber-to-MDUs. In her separate statement on the Commission's decision providing relief to fiber-to-MDUs, Commissioner Abernathy stated:

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[26] *Review of Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, Order on Reconsideration*, FCC 04-191, released August 9, 2004 ("*TRO Reconsideration Order*").

[27] Indeed, even in the case of FTTH, there will be copper in the loop insofar as the inside wiring within the customer's home will be metallic, not optical.

> I recognize that according FTTH treatment even where a short length of inside copper wiring exists is no different in principle from extending such treatment to fiber-to-the-curb deployments that serve premises other than MDUs. Indeed, I believe that broadband providers, equipment manufacturers, and consumers all would benefit if we left the choice among the various deep-fiber architectures to the marketplace. I see no reason for the Commission to prefer one form of deployment over another so long as all of them enable very high-speed Internet access and video services (and thus are affected comparably by the investment disincentives associated with unbundling) and all are subject to the same degree of intermodal competition (as they undoubtedly are). I therefore hope that the Commission builds on this Reconsideration Order by revisiting the treatment of fiber-to-the-curb deployments in an upcoming item in the near future.[28]

Commissioner Abernathy is correct – the service capabilities of FTTC, FTTH and fiber-to-MDUs are equivalent and the decision as to which deep-fiber architecture makes the most sense in any given deployment should be left to the carrier.

FTTC technology allows the carrier to provide tremendous amounts of capacity to the customer today using a fiber to a pedestal located within 500 feet of the subscriber's premises and copper lines (either twisted copper pairs or a combination of twisted copper pairs and coaxial cable) for the connection between the pedestal and the network interface device at the customer's premises. Speeds of 10 Mbps to each subscriber over FTTC have been deployed to hundreds of thousands of subscribers already in addition to 750 MHz multi-channel video delivered over a separate wavelength at 1550nm. Speeds of 100 Mbps to each subscriber over FTTC are possible today and technology that provides speeds of 1000 Mbps (1 gigabit per second ("Gbps")) to each subscriber over copper loops up to 500 feet in length is also available.[29] FTTC thus can readily support

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[28] *TRO Reconsideration Order*, Statement of Commissioner Kathleen Q. Abernathy.

[29] Marvell Semiconductor has developed robust PHY transceiver technology devices that greatly exceed the requirements of the IEEE Gigabit Ethernet standard ("GigE"). While GigE is a four pair standard, these devices will also automatically adapt to Fast

the "triple play" services – voice, high speed data and multi-channel video – and also has the capability for even higher speeds to accommodate future service needs that might develop.

The reason that FTTC can provide such capacity is a fairly simple law of physics – over short distances (*i.e.*, approximately 500 feet) copper exhibits very little impedance, thereby enabling significant capacity/bandwidth. Appendix B hereto is a chart demonstrating the steep increase in capacity for untreated copper that occurs right around 500 feet, so that particular distance can serve as a "bright-line" standard for distinguishing FTTC from other hybrid loops.[30] It is the "laws of physics" that has led to adoption of 500 feet as the standard for maximum copper loop length in FTTC, and as such is specified in the GR-909 FTTC standard issued by Telcordia.

The high capacity made possible by the elimination of long copper loops in FTTC architectures means that FTTC can provide all of the services that can be offered by FTTH. Although in theory an all-fiber loop provides nearly limitless capacity, FTTH deployments do not incorporate the sophisticated electronics (such as dense wavelength division multiplexing (DWDM) equipment) at each individual premise that would be necessary to support such "limitless" capacity. In fact, FTTH utilizes passive optic technologies, which provide 622 Mbps speeds. However, under today's FTTH typically-

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Ethernet in the 100 Mbps two pair environment typical of FTTC. According to Marvell, their products provide full duplex Gigabit transmission up to 180 meters using Category 5 cable while maintaining a Bit Error Rate of 10^{-10} or better. This represents an 80% increase in cable distance relative to the 1000BASE-T standard.

[30] To the extent future technological developments expand the distance over which equivalent capacity can be provided, affected companies can file a petition for rulemaking at that time to modify the rules.

deployed architecture, that 622 Mbps capacity is shared among 20-32 homes, so that each subscriber has access to 17- 30 Mbps of dedicated capacity. In comparison, FTTC loops are served by fiber that has the capability to provide 1 Gbps Mbps capacity to each ONU (that is typically shared by eight homes and using ADSL2+), so that during peak periods the dedicated capacity to FTTC homes would be approximately 25 Mbps per home. Future capabilities will also be equivalent:

FTTH	**FTTC**
Today's Technology – [BPON 622 Mb/s] and 20 – 32 Homes per PON = **17 – 30 Mbps per home**	Today's Technology – [1Gb/s/ONU; ADSL2+ connectivity] = **25 Mbps per home**
Tomorrow's Technology – [GPON 2.5 Gb/s] and 32 Homes per PON = **80 Mbps per home**	Tomorrow's Technology – [1Gb/s/ONU; VDSL2 connectivity] = **50 – 100 Mbps per home**

This service equivalency between FTTH and FTTC compels the same conclusions for the Commission's impairment analyses for these two broadband system designs. As discussed above, FTTC provides enormous capacity and services equivalency to FTTH. Thus, with regard to the revenue opportunities that the Commission examines in conducting its impairment analysis, FTTC (like FTTH and fiber-to-MDUs) supports voice, high speed data and multi-channel video. FTTH and FTTC both offer greater revenue potential than other fiber/copper loops. Moreover, these capabilities and revenue opportunities are not mere theoretical constructs, but have already been exhibited in a wide variety of deployments. AFC has already shipped FTTC systems to two ILECs (BellSouth and Sprint) who are passing an estimated 490,000 homes with video, high-speed data or a combination of both. Perhaps more importantly from the perspective of the Commission's impairment analysis, AFC has shipped FTTC systems to competitive

carriers, who have deployed these systems in both "overbuild" and "greenfield" situations.[31] These actual deployments by ILECs and CLECs confirm the "triple play" revenue opportunities, demonstrating the absence of impairment.

AFC acknowledges that there are some differences between FTTC and FTTH (although not in services capabilities). For example, the device for converting optical to electrical signals is located at the curbside pedestal and shared in FTTC deployments, but must be deployed to each premise under FTTH. Likewise, there are differences in the powering capabilities in the event of a blackout, with a need for backup batteries at each home in the case of FTTH. In addition, there are likely to be cost differences a carrier faces in choosing between FTTC and FTTH. AFC believes, however, that the ILEC should choose which of these technologies to deploy in any given situation based on these different engineering and cost considerations. Those differences between FTTC and FTTH do not affect the impairment analysis between ILECs and CLECs, because with respect to the relevant characteristics – the ability to provide advanced services and take advantage of expanded revenue opportunities – FTTC and FTTH are the same. To the extent that the Commission imposes different unbundling obligations, however, the Commission distorts the ILEC's choice of one technology versus the other, notwithstanding the absence of impairment in either case.

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[31] Grande Communications and Knology are providing voice, high-speed data and multi-channel video services using AFC's FTTC systems to approximately 75,000 homes passed in "overbuild" deployments. In addition, AFC has shipped FTTC systems to other competitive carriers, including Litestream and FCI Broadband (formerly Futureway), that have deployed these systems in greenfield situations. Finally, AFC has shipped FTTC systems to one major MSO (AT&T Broadband, now Comcast), that has used this technology to provide voice, high-speed data and multi-channel video services to some 24,000 homes passed.

In deciding what elements to unbundle, the Commission recognizes that Section 251(d) (2)'s "at a minimum" language obligates the Commission to examine additional factors and policies besides impairment. In the case of FTTC, like FTTH, these additional factors reinforce the need to reduce the unbundling obligations attached to FTTC. One significant consideration is the goal enunciated by Congress in Section 706 of the Telecommunications Act of 1996 of fostering the widespread deployment of advanced services. FTTC, with the capability of supporting data rates of 100 Mbps or more, certainly qualifies as an "advanced service."

Unbundling obligations create disincentives for new investment and impose costs. When evaluating whether or not to invest, a carrier takes into account potential revenues that could result from the deployment of the new equipment. Unbundling will generally reduce the financial incentives because retail subscriber revenue is replaced by significantly lower TELRIC-based UNE fees. In addition, unbundling increases operational costs as well as the cost of equipment, which must generally be re-designed to accommodate the regulatory-imposed interfaces. As noted above, the increased costs of unbundling faced solely by FTTC distort the ILEC's choice between FTTC and FTTH. Equally important, the additional costs of unbundling can cause a carrier to decide not to deploy FTTC, even though deployment of FTTC in the particular situation would be warranted but for the unbundling costs and adverse revenue effects.

The case for deployment of FTTC or FTTH will vary, depending on demographics, customer concentration, terrain and numerous other variables that affect deployment costs and revenue expectations. To the extent the Commission retains the unbundling obligations on FTTC, it will increase the costs and decrease the revenue

opportunities, thereby rendering FTTC "uneconomic" for some communities. Congress, however, did not instruct the Commission to foster the availability of advanced services in a few, select markets – the "low hanging fruit" – but instead directed the Commission in Section 706 to facilitate the deployment of advanced services to all Americans.

IV. Conclusion

AFC applauds the Commission's actions in reducing or eliminating the unbundling obligations on the incumbent carriers' broadband facilities. The elimination of those investment disincentives is helping to spur broadband investment. The Commission should not, as part of this remand proceeding, backslide from that policy. Indeed, AFC urges the Commission to enhance that relief by imposing the same unbundling treatment on FTTC as FTTH. AFC believes these actions will best serve the public interest.

Respectfully submitted,

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Dated: October 4, 2004

APPENDIX A

Advanced Fibre Communic (AFCI)

as of 09/24/2004 at 04:00PM EDT (NASDAQ Delay: 15 mins.)

quote data provided by ComStock

Adtran Inc (ADTN)

as of 09/24/2004 at 04:00PM EDT (NASDAQ Delay: 15 mins.)

quote data provided by ComStock

Alcatel ADS (ALA)

as of 09/24/2004 at 04:00PM EDT (NYSE Delay: 20 mins.)

quote data provided by ComStock

CIENA Corp (CIEN)

as of 09/24/2004 at 04:00PM EDT (NASDAQ Delay: 15 mins.)

quote data provided by ComStock

Corning Inc (GLW)

as of 09/24/2004 at 04:01PM EDT (NYSE Delay: 20 mins.)

quote data provided by ComStock

Lucent Technologies (LU)

as of 09/24/2004 at 04:01PM EDT (NYSE Delay: 20 mins.)

quote data provided by ComStock

Nortel Networks (NT)

as of 09/24/2004 at 04:00PM EDT (NYSE Delay: 20 mins.)

quote data provided by ComStock

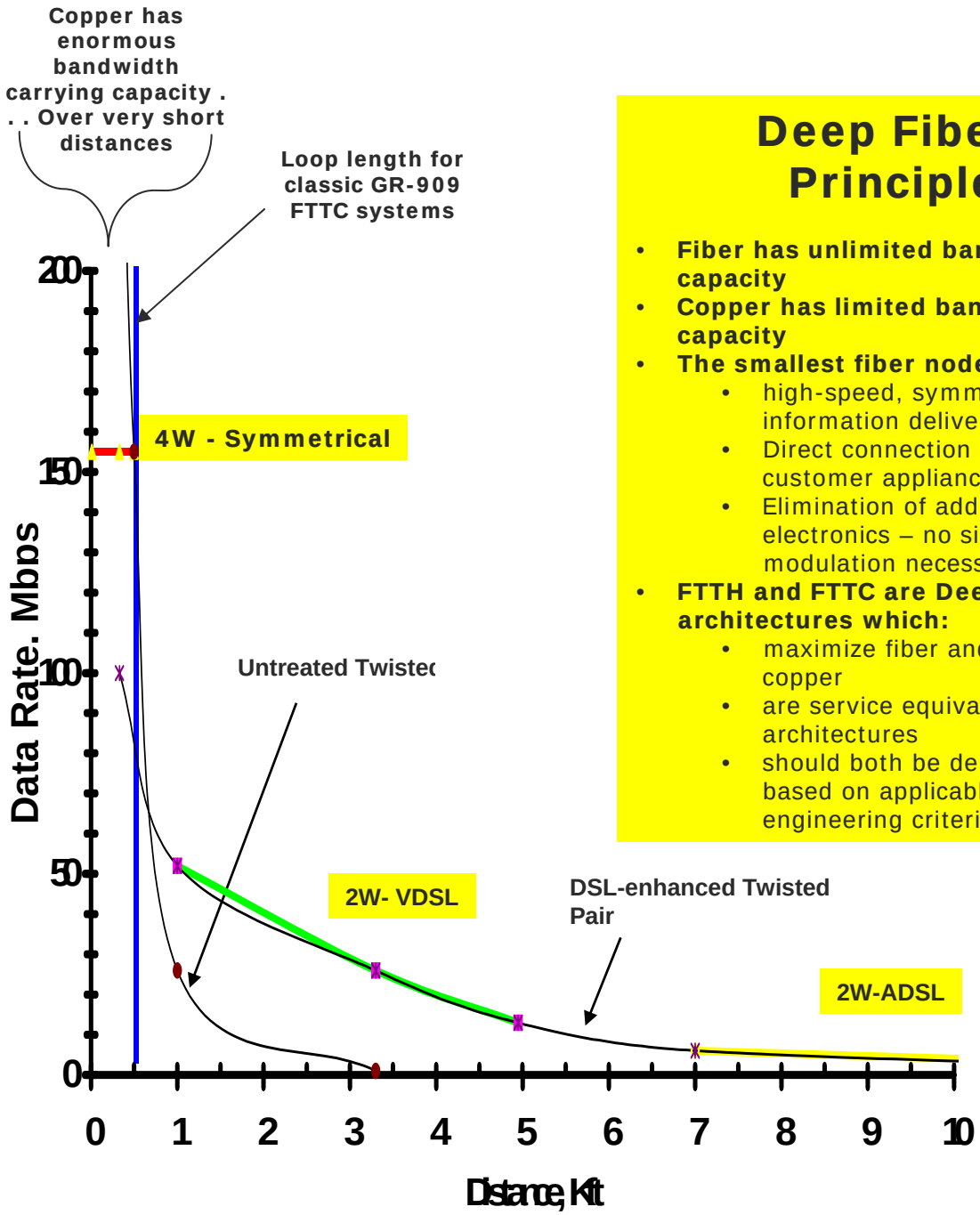
Tellabs, Inc (TLAB)

as of 09/24/2004 at 04:00PM EDT (NASDAQ Delay: 15 mins.)

quote data provided by ComStock

APPENDIX B

The Value of Deep Fiber Deployment



Deep Fiber Principles

- **Fiber has unlimited bandwidth capacity**
- **Copper has limited bandwidth capacity**
- **The smallest fiber nodes enable**
  - high-speed, symmetric information delivery
  - Direct connection to the customer appliance
  - Elimination of additional electronics – no signal modulation necessary
- **FTTH and FTTC are Deep Fiber architectures which:**
  - maximize fiber and minimize copper
  - are service equivalent architectures
  - should both be deployed based on applicable engineering criteria

Bandwidth Carrying Capacity of Twisted Pair Copper